ALTO Extension for Overlay Routing
draft-song-alto-overlay-routing-00

Presenter: Haibin Song
             Yi Sun
haibin.song@huawei.com
sunyi@ict.ac.cn
History

• Overlay routing use case was documented in draft-song-alto-use-case-extension, and was discussed at IETF 87th

• This document specifies the detailed protocol extension for it
  – A very simple service extension
An real use case

This is from a tier 1 CP in China

Use Overlay Routing
When Direct Internet Routing is congested

Data Center in Shenzhen

Data Center in Xi’an

Internet: Delay-Insensitive traffic

VPN: Delay sensitive traffic

Data Center in Shanghai

Data Center in Beijing

When Internet congestion occurs between Shenzhen & Beijing, the content provider usually use the data center in Xi’an or Shanghai as the Relay Node

Can ALTO provide cost value as a guidance for path selection?
New Service: Overlay Routing Cost

• In a request, besides the source and destination IP addresses, a client can specify the RELAY nodes’ addresses, and whether DRR and VPN cost should be returned
  – DRR: direct routing
  – VPN: The cost will be returned if (1) a VPN tunnel exists between a source<->destination (2) in the request, the value for “vpn” is true
  – Relays: the relay nodes between the source and destination
Example: request

POST /overlayroutingcost/lookup HTTP/1.1
Host: alto.example.com
Content-Length: TBA
Content-Type: application/alto-overlayroutingcostparams+json
Accept: application/alto-overlayroutingcost+json,application/alto-error+json

{
  "cost-type": {
    "cost-mode": "ordinal",
    "cost-metric": "routingcost"
  },
  "endpoints": {
    "srcs": ["ipv4:1.1.1.1"],
    "dsts": ["ipv4:2.2.2.2", "ipv4:3.3.3.3"],
    "drr": false,
    "vpn": true,
    "relays": ["ipv4:6.6.6.6", "ipv4:7.7.7.7"]
  }
}
Example: response

HTTP/1.1 200 OK
Content-Length: TBA
Content-Type: application/alto-overlayroutingcost+json

{
  "meta": {
    "cost-type": {
      "cost-mode": "ordinal", "cost-metric": "routingcost"
    }
  },
  "overlay-routing-cost-map": {
    "ipv4:1.1.1.1": {
      "ipv4:2.2.2.2": {
        "ipv4:6.6.6.6": 1, "ipv4:7.7.7.7": 2,
      },
      "ipv4:3.3.3.3": {
        "ipv4:6.6.6.6": 2, "ipv4:7.7.7.7": 3
      }
    }
  },
  "vpncost": {
    "ipv4:1.1.1.1": {
      "ipv4:2.2.2.2": 0
    }
  }
}
Next step

• Feedback from the list
• Update document to address comments
  – VPN relays
• Ask for adoption when appropriate